Managing CPL 730 Bed Day Use

Erie County

LEAN SIX SIGMA PROJECT
April – October 2008

TEAM MEMBERS

Champion: Philip Endress
Process Owner: Michael Ranney

Project Team: MH: Michael Ranney, Marie Morilus Black, Deborah Goldman, Nicki Fera, Bill Burgin; DOH: Cecelia Kohlmeier; Sheriff: Barbara Leary; Budget: Bridget Corcoran.
Clinical Consultants: ECMC 9-2: Michael Cummings; NYS OMH: Vincent Spizzo

Green Belt Candidate: Peter Curtis
Master Black Belt: Thom Marra

DEFINE PHASE

Managing CPL 730 Bed Day Use

Project Charter - Define

Strategic Goal/Business Case: The County has the opportunity to reduce Court Ordered 730 bed day utilization by improving the timeliness and efficacy of treatment at the Holding Center and the 9-2 Beds at ECMC; and in collaboration with NYS, implementation of a 730 Inpatient shortened stay service model supported by collaborative discharge planning.

Problem Statement: There is a 3 year trend of significant increases in Court Ordered CPL 730 State Psychiatric bed day utilization for individuals assessed to be incompetent to stand trial.

Project Objective: Reduce the annual number of CPL 730 Bed Days by 41% from a three year average base line of 760 to 450.

Project Charter cont.- Define

Benefits/Savings Potential: Annualized Savings of $117,000.

Scope/Boundaries: The Project focuses only on those treatment and service coordination practices that impact directly on CPL 730 Bed Day Utilization.

Timeline: Trending to the targeted annualized bed day utilization level will begin in the fourth quarter of 2008.

Define Phase: Population Served

- A Defendant is Competent to Stand Trial if he/she:
    - Is oriented to time, place, person
    - Is able to perceive, recall, & relate
    - Understands the court process & critical roles
    - Can establish a working relationship with his attorney
    - Is sufficiently stable to withstand stresses of trial without suffering a prolonged or permanent decompensation

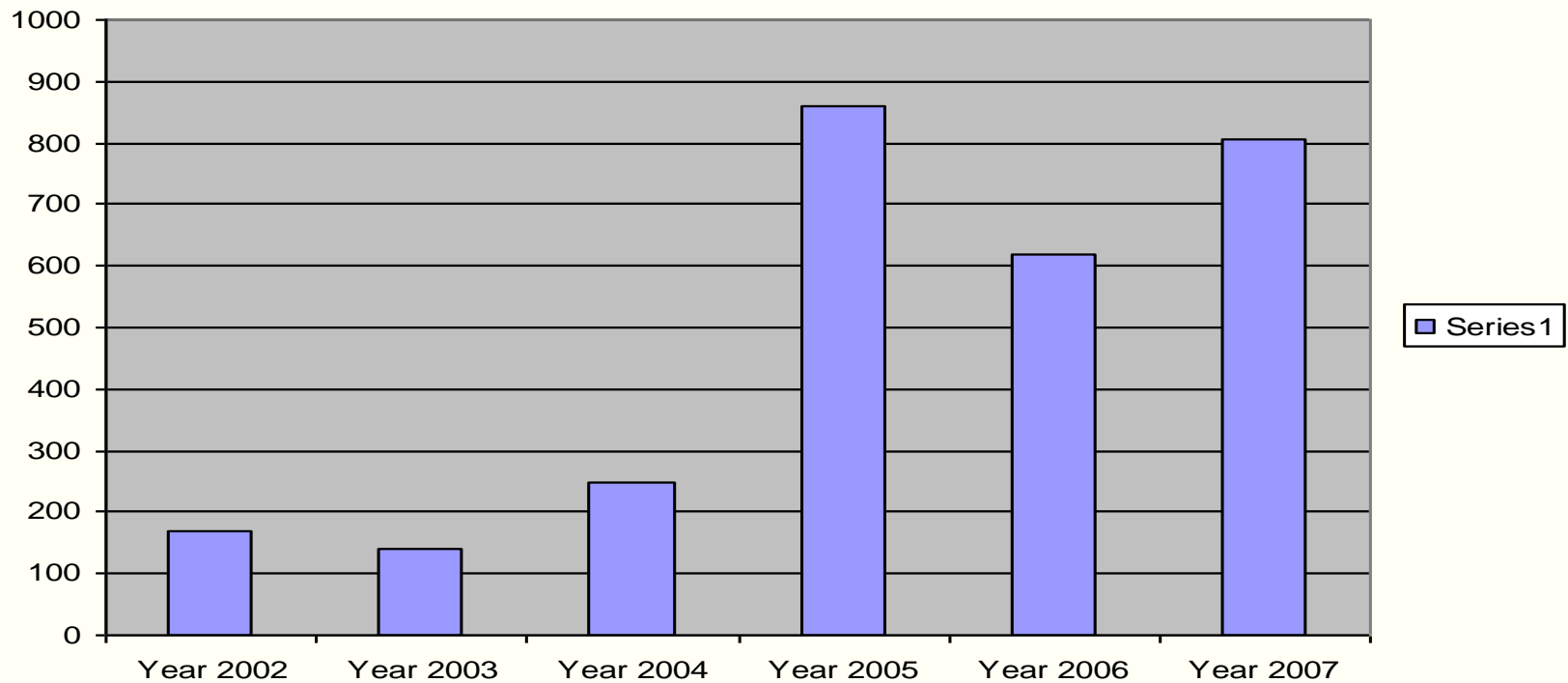# MEASURE PHASE

Managing CPL 730 Bed Day Use

Measure Phase: Goals

- Document Utilization Trends & Establish Entitlement;

- Establish Process Flow;

- Brainstorm/ Prioritize Interventions;

- Record Review to Profile 730 Placements; and,

- Identify Other Potential Opportunities & Challenges.
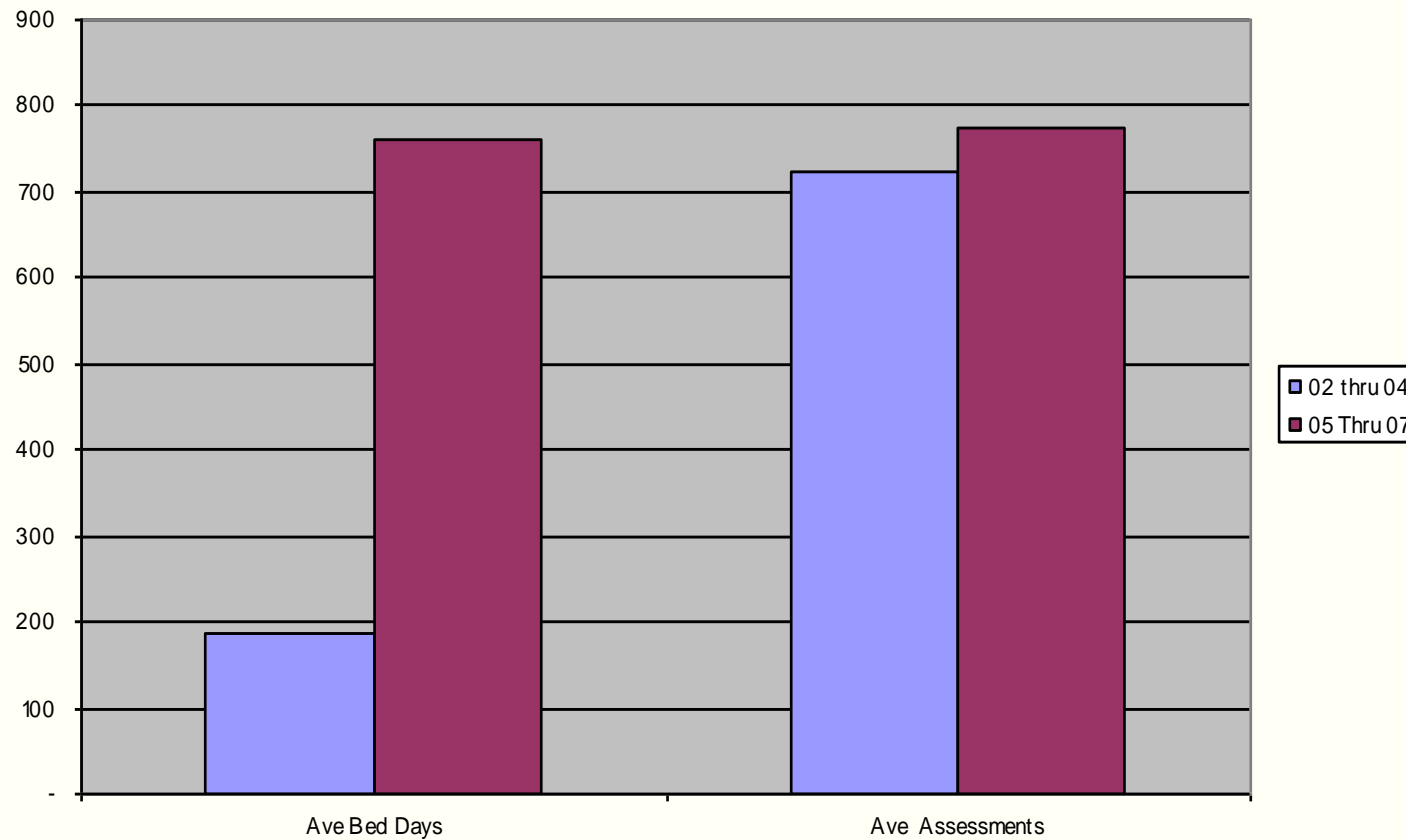
Measure Phase: Utilization Trend

Court Ordered 730 Bed Day Utilization

Measure Phase:
Utilization Trends Summarized

Average Annual 730 Utilization Trends

Legend:
- 02 thru 04
- 05 Thru 07

Categories: Ave Bed Days, Ave Assessments

Measure Phase: Trend Statistical Significance

- **One-way ANOVA: 730 Bed Days versus Batch**
- Source DF   SS   MS   F   P
- Batch   1 497088 497088 52.12 0.002
- Error   4   38153   9538
- Total   5 535241
- S = 97.66   R-Sq = 92.87%   R-Sq(adj) = 91.09%

- **One-way ANOVA: 730 Assessments versus Batch**
- Source DF   SS   MS   F   P
- Batch   1   4161 4161 1.26 0.325
- Error   4 13219 3305
- Total   5 17380
- S = 57.49   R-Sq = 23.94%   R-Sq(adj) = 4.92%

Measure Phase: Holding Center Process Flow

From Arrest to 2nd Court Appearance: 2 to 4 Weeks

Release Options
Own Recognizance
Bail

Judge:
Release or Hold

Hold

Arrest

< 6 Hours

Law Enforcement

Booking (HC)
Desk Security
Intake
Suicide Screen
Medical Screen
Record Review

Deputy Sheriff Officer

Initial Housing
Bullpen

1 to 3 Days

Arraignment
1st Court Appearance

Court

HC Processing
Record Update
Reception Pod
Ongoing Monitor
Classification

10 Days

Housing Specific Pod

1 to 14 Days

2nd Court Appearance to Disposition

Measure Phase:
At Risk Individuals Flow

Booking (HC)
Desk Security
Intake
Suicide Screen
Medical Screen
Record Review

Deputy Sheriff Officer

Evening Medical Coverage
Medical Screen

Dept of Health

Sheriff/ Medical Staff: Off Hour Coverage in Consult with Forensic MH

Mental Health Assessment

Forensic MH Specialist

Admission to MH Services

No → Case not Opened May receive Additional Referral

Triage to MH Services
Monitoring
Crisis Intervention
Court Contact
Change(s) in Status
 *   Observation
 *   Housing
 * Treatment

Medication/ Psychiatric Consult

No → Case may be Reevaluated at Later Date

Yes

Linkage to ECMC 9-2 Psych Inpatient Beds Treatment/ Stabilization

Psychiatric Treatment/ Medication Management Assessment of Competence

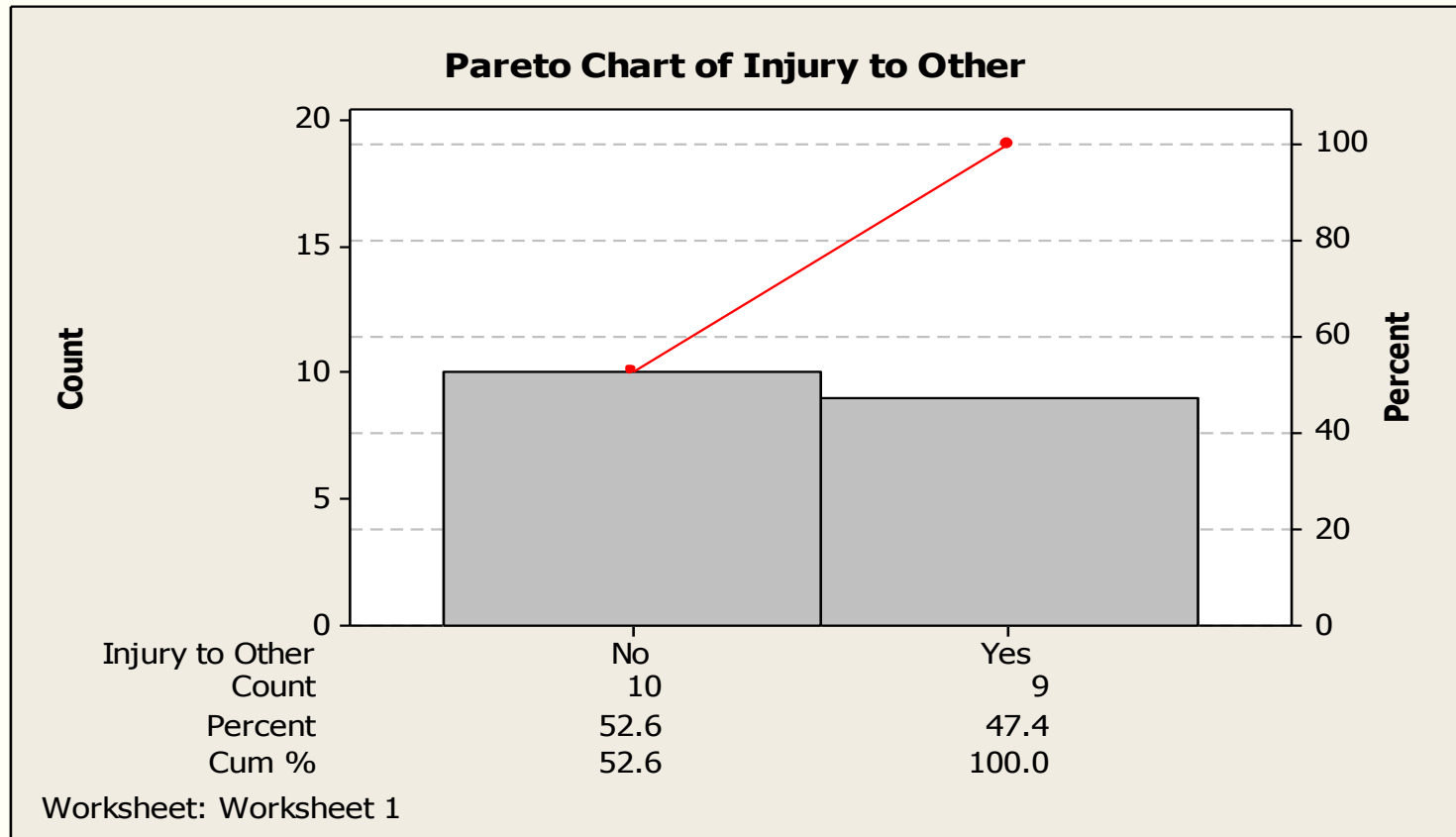# Measure Phase: Core Team Areas of Concern

- **Short to Intermediate Term:**
  - Ensure Timeliness of Initial Assessment, Psychiatric Evaluation and Treatment Regimen Plan;
  - Reduce Timeframe from the Prescription to Commencement of Treatment;
  - Improve Access to & Continuity of Care with ECMC 9-2 Psychiatric Inpatient Beds; and,
  - Partner with NYS OMH to Implement Common Practice Standards to Achieve and Maintain CPL 730 Competency in Reduced Length of Stays.

- **Longer Term:**
  - Improve the effectiveness of Community Service Options to Reduce Rates of Re-arrest for At Risk Individuals
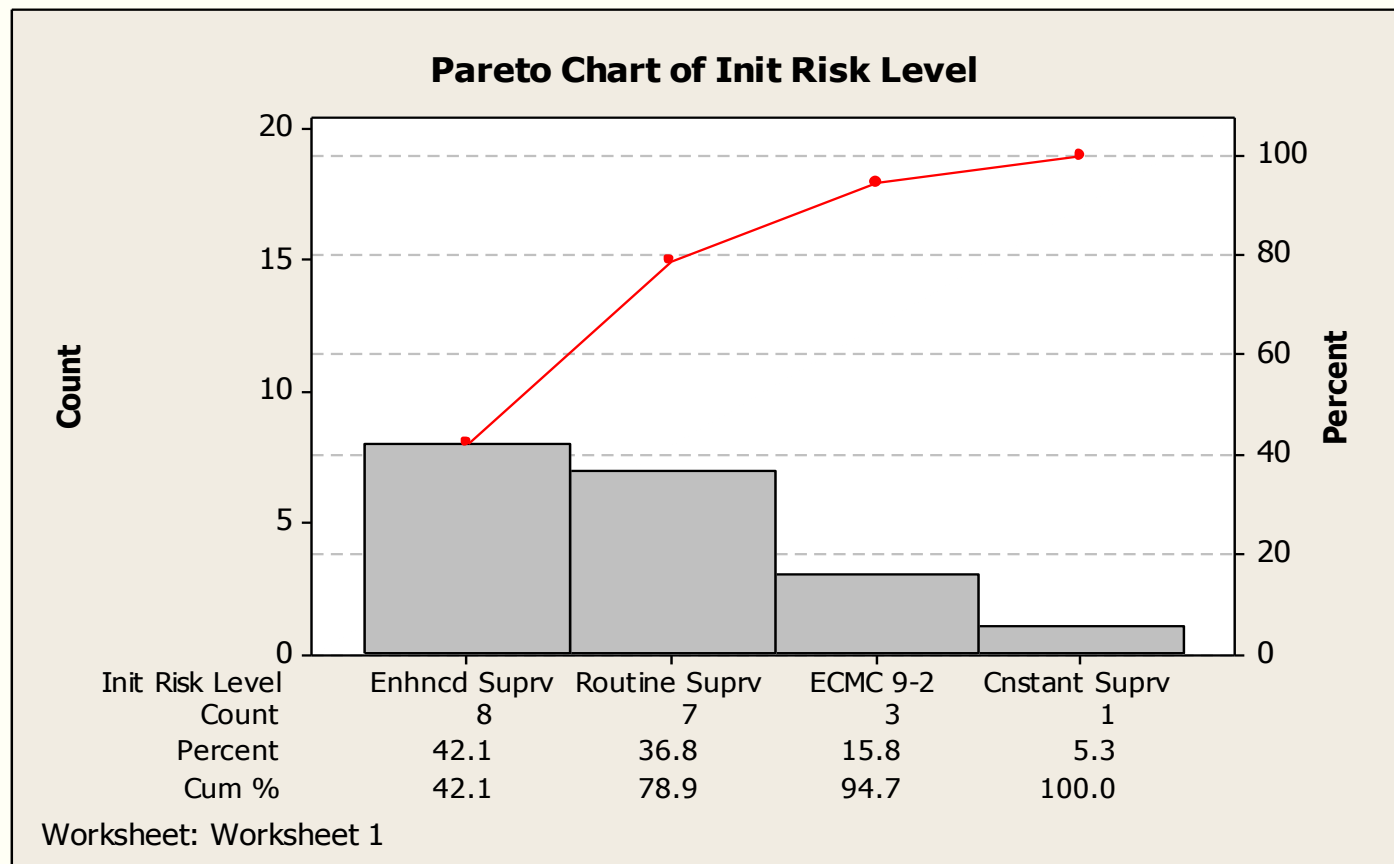
Measure Phase: Record Review Findings
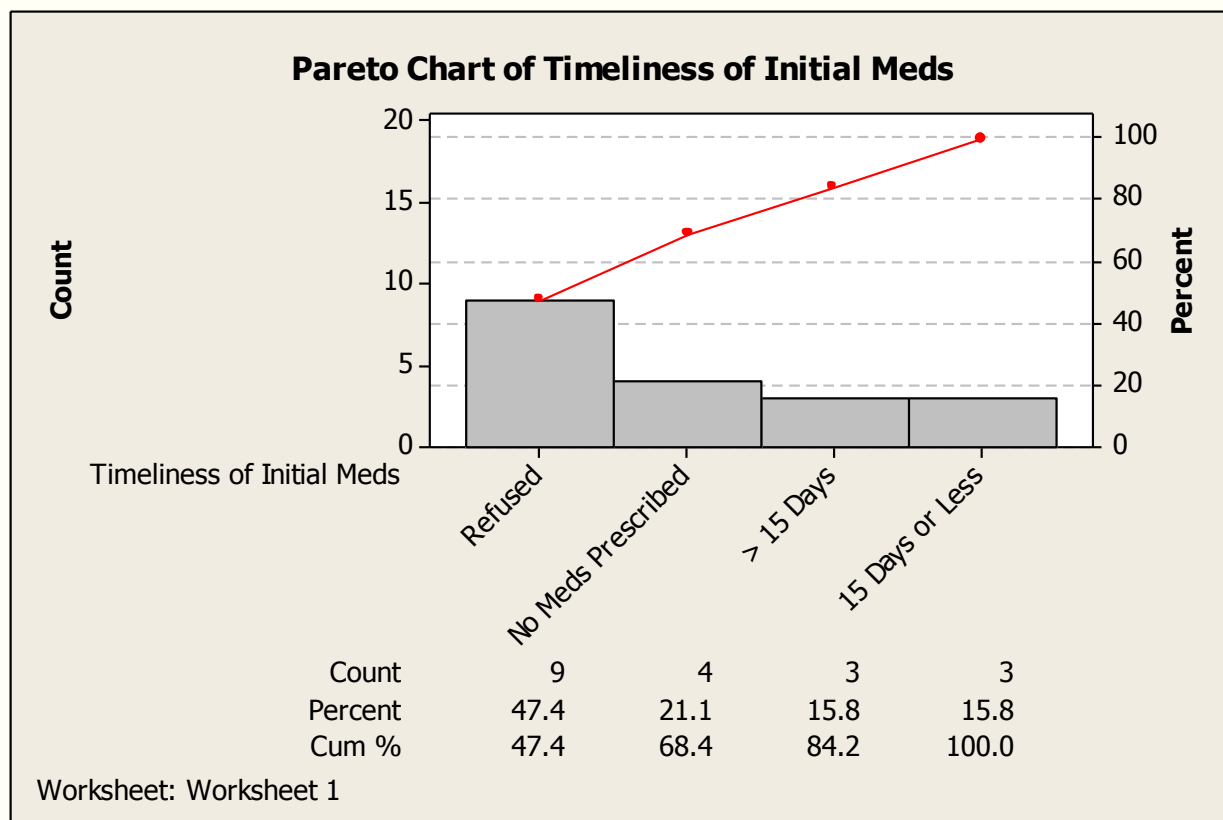
- Criminal Charge: Felony

Pareto Chart of Injury to Other

Injury to Other	No	Yes
Count	10	9
Percent	52.6	47.4
Cum %	52.6	100.0

Worksheet: Worksheet 1

Measure Phase: Record Review Findings

- Mental Health Assessment

Pareto Chart of Init Risk Level

Init Risk Level	Enhncd Suprv	Routine Suprv	ECMC 9-2	Cnstant Suprv
Count	8	7	3	1
Percent	42.1	36.8	15.8	5.3
Cum %	42.1	78.9	94.7	100.0

Worksheet: Worksheet 1

Measure Phase: Record Review Findings

- Psychotropic Medication Intervention (Added Challenge: High % Individuals Refusing Medication)

Pareto Chart of Timeliness of Initial Meds

Timeliness of Initial Meds

	Refused	No Meds Prescribed	> 15 Days	15 Days or Less
Count	9	4	3	3
Percent	47.4	21.1	15.8	15.8
Cum %	47.4	68.4	84.2	100.0

Worksheet: Worksheet 1

Measure Phase: Record Review Findings

- Added Challenge: Admissions versus Readmissions

Pareto Chart of 730 Admission

730 Admission	Initial ALOS 112	Readmit ALOS 148
Count	19	11
Percent	63.3	36.7
Cum %	63.3	100.0

Worksheet: Worksheet 1
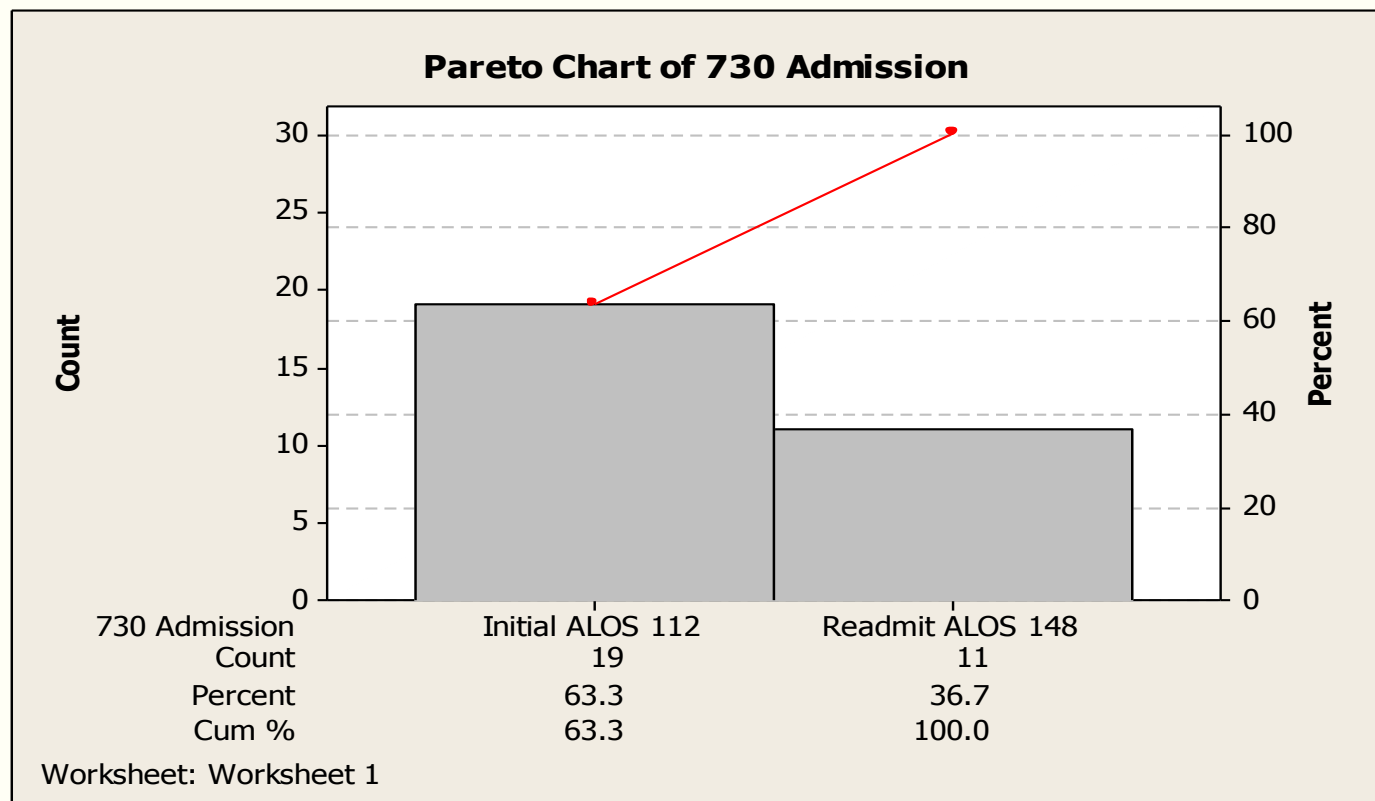
ANALYZE PHASE

Managing CPL 730 Bed Day Use

Analyze Phase: Goals

- **Implement a Stratified Sample Approach to Establish the Effectiveness of Timely Psychiatric Treatment @ the Holding Center & in ECMC's 9-2 Inpatient Beds**
  - Ensure Stratifying Variables Demonstrate a Match with the 730 Court Ordered Placements
  - Demonstrate Differential Practice Outcomes
  - Test for Statistical Significance

Analyze Phase: Record Review Findings

- Samples Matched by Criminal Charge:

Pareto Chart of Injury to Other by 730
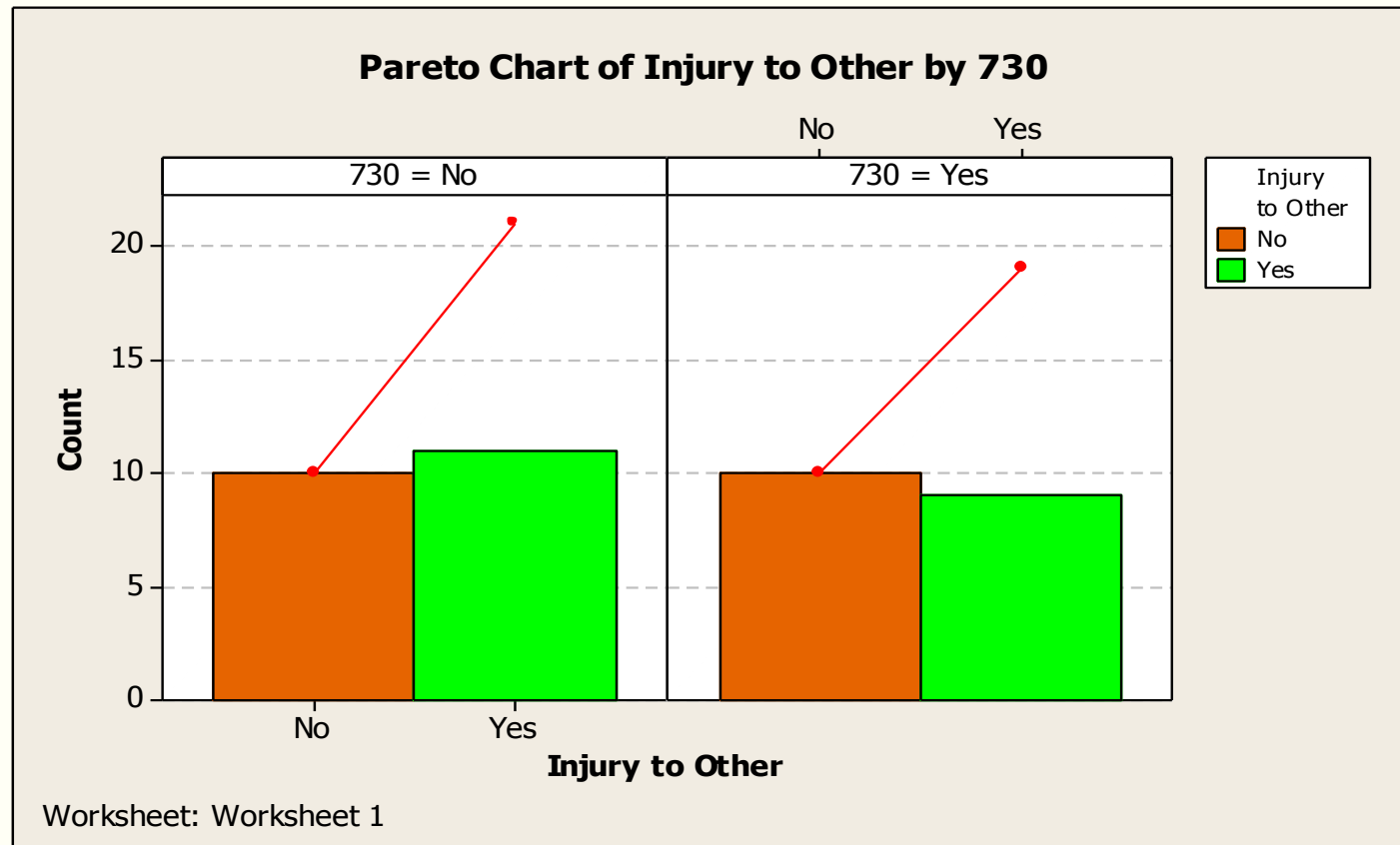
Analyze Phase: Record Review Findings

- Samples Matched by Assessed Risk Level:

Pareto Chart of Init Risk Level_1 by 730
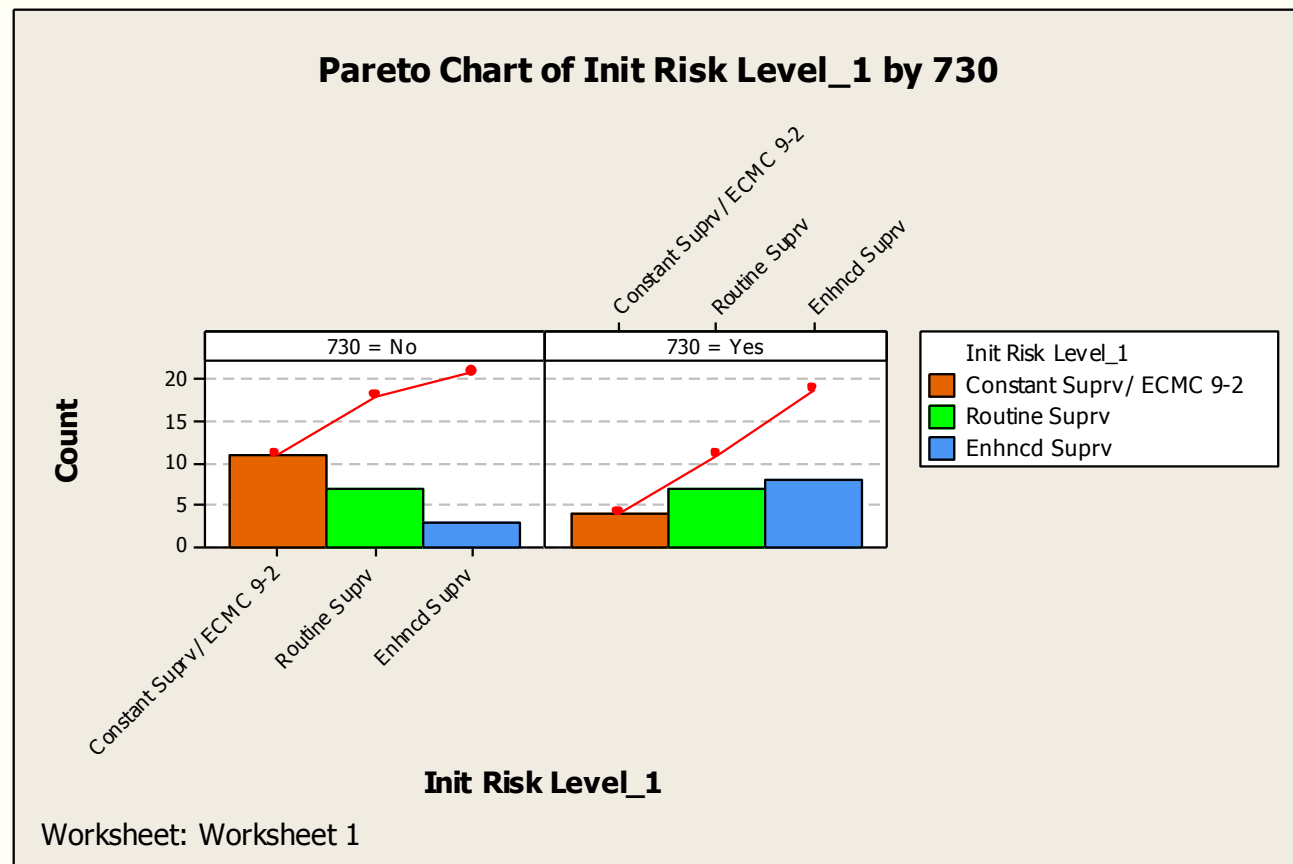
Analyze Phase: Record Review Findings

- Timely Engagement in Psychiatric Treatment: Status @ Time of Competency Assessment

Boxplot of Days to Init Trt

Days to Init Trt (y-axis): 0, 10, 20, 30, 40, 50

730 Utilization (x-axis): No, Yes

Worksheet: Worksheet 1
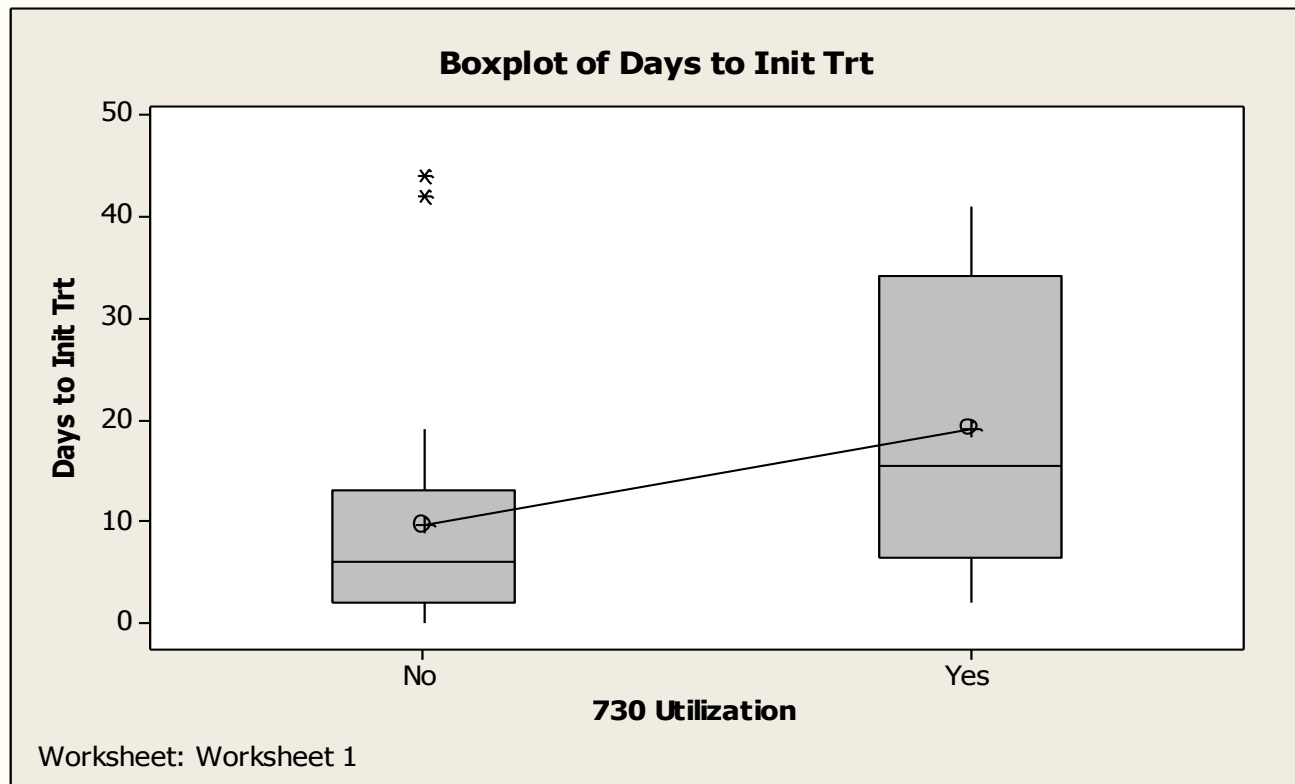
Analyze Phase:
Record Review Findings

- ## **Statistical Significance of Finding**
  - ○ **Two-Sample T-Test: Days to Initial Trtment by 730 Utilization**

730 Utilization	N	Mean	St Dev	SE Mean
No	19	9.7	12.7	2.9
Yes	6	19.0	14.9	6.1

  - ○ **Difference = mu (No) - mu (Yes)**

    Estimate for difference: -9.32

    95% upper bound for difference: 3.47

    T-Test of difference = 0 (vs <): T-Value = -1.38

    P-Value = 0.105

Analyze Phase: Record Review Findings

- **Refused Treatment and Admission to 9-2 Beds as Alternative to 730 Placement**

  - **Tabulated Statistics:**
    Rows: 730 Utilization   Columns: Refused Meds/ Linked to 9-2

	No Successful 9-2 Linkage	Successful 9-2 Linkage	All
730 Placement	9	4	13
Found Competent	0	8	8
All	9	12	21

  - **Pearson Chi-Square = 9.692, DF = 1, P-Value = 0.002**
  - **Likelihood Ratio Chi-Square = 12.634, DF = 1, P-Value = 0.000**

IMPROVE PHASE

Managing CPL 730 Bed Day Use

Improve Phase:
Initial Changes in Practice

- During the 2nd quarter of 2008, the Forensic Unit began Implementation of Enhanced Clinical & Administrative Practices in each of the following:
  - Increase the Effectiveness of Medication Treatment and Case Management in the Holding Center;
  - Enhance Service Coordination with ECMC's 9-2 Unit;
  - Improve Monitoring and Collaboration with the 730 State Facilities and the Courts regarding the Status of Cases and Targeted Problem Solving to Accelerate Individual's Discharge and/ or Change in 730 Status.

Improve Phase: Record Review Findings

- **Holding Center: Intensity of Service to Engage in Treatment Example 1: Psychiatry**
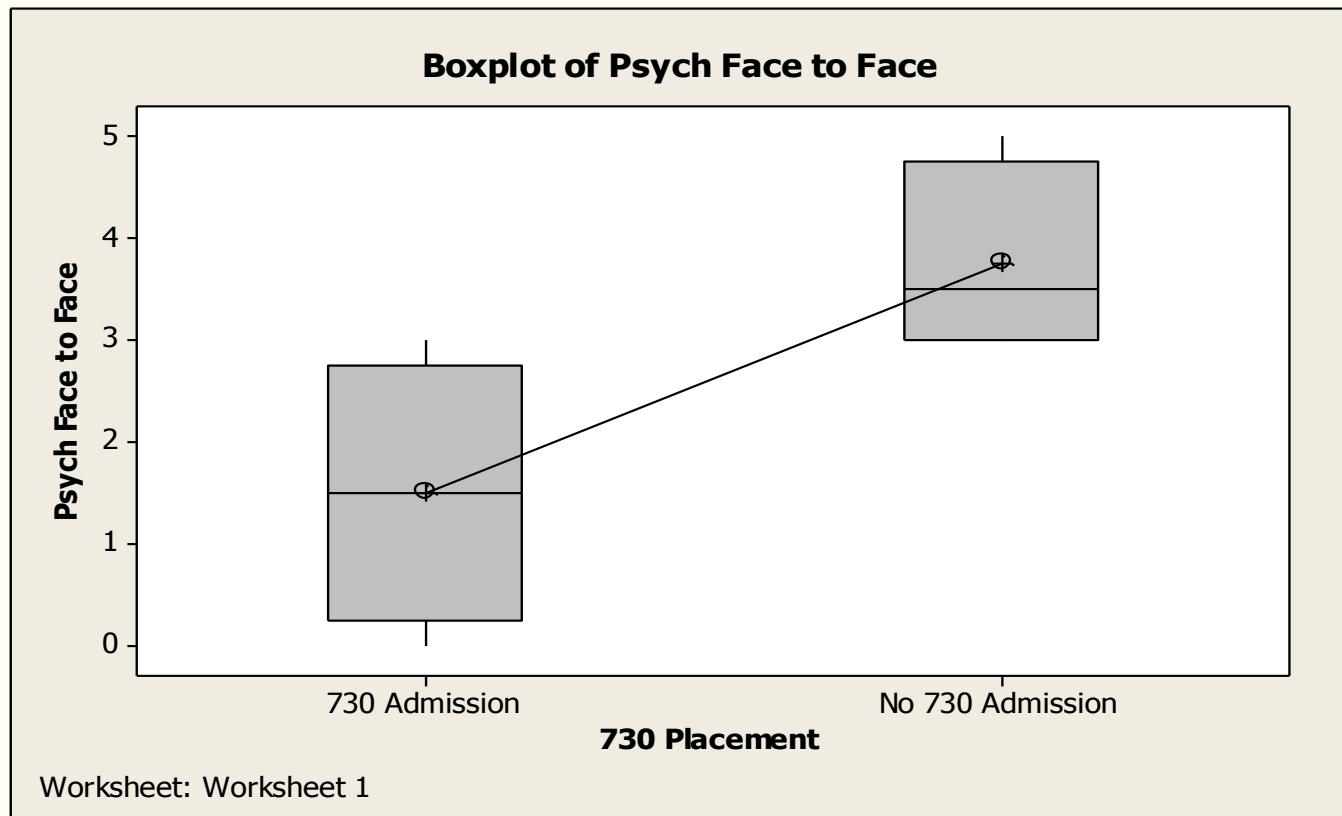
Boxplot of Psych Face to Face

Psych Face to Face (y-axis: 0 to 5)

730 Placement (x-axis: 730 Admission, No 730 Admission)

Worksheet: Worksheet 1

Improve Phase:
Record Review Findings

- **Holding Center: Intensity of Service to Engage in Treatment Example 2: Case Mgt**

Boxplot of FMH Specialist
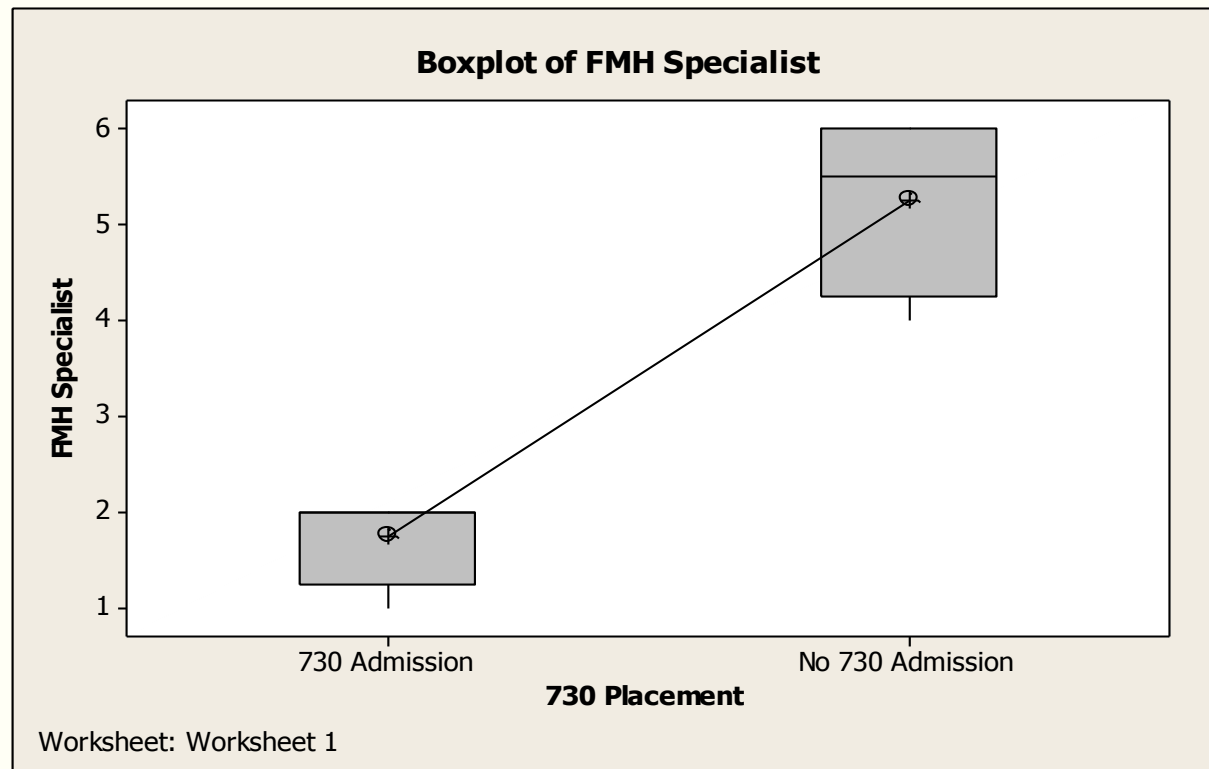
Improve Phase:
Record Review Findings

- **Statistical Significance of Holding Center Findings Using Two-Sample T-Tests**
  - Psychiatry: Intensity of Face to Face Visits:
    Previous Years' 730 Admission Group Mean: 1.50
    2008 No 730 Admission Group Mean: 3.75
  - T-Test of difference = 0 (vs not =): T-Value = -2.80
    P-Value = 0.038

  - Case Management: Intensity of Face to Face Visits
    Previous Years' 730 Admission Group Mean: 1.75
    2008 No 730 Admission Group Mean: 5.25
  - T-Test of difference = 0 (vs not =): T-Value = -6.48
    P-Value = 0.008

Improve Phase:
730 Bed Days Utilization

Multi Year Trend Analysis
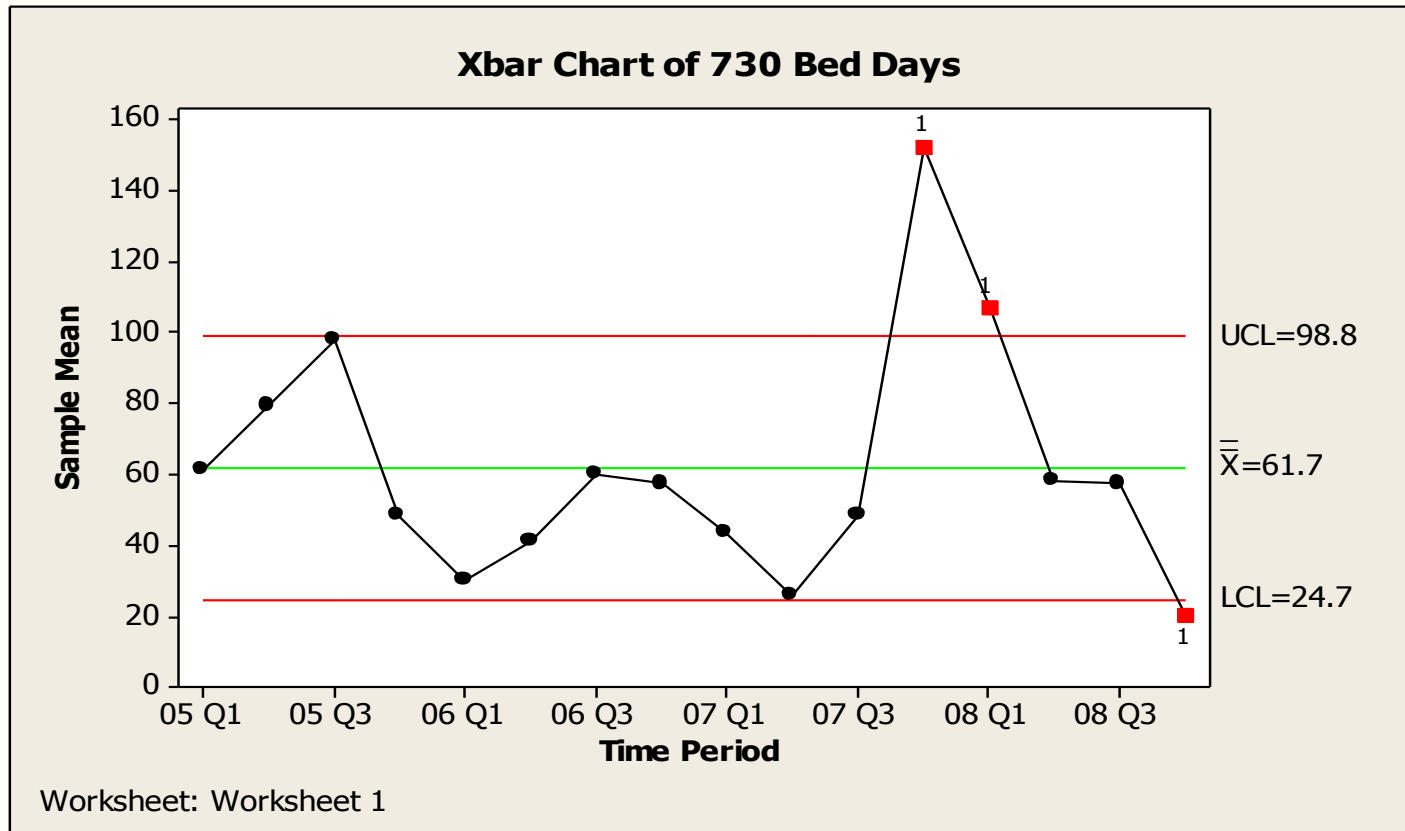
Improve Phase: Next Steps

- **Establish MOU with the NYS Office of Mental Health regarding 730 Placements Ensuring Timely Sharing of Critical Assessment/ Trtmnt Information & Service Coordination to Support:**
  - Enhanced Continuity of Care;
  - Increased Efficiency & Effectiveness of Treatment; and,
  - Improved Maintenance of Psychiatric Stability; and, Competency to Stand Trial.

CONTROL PHASE

Managing CPL 730 Bed Day Use

Control Phase Current Focus

- **Establish Policies & Procedures Supporting Each of the Following:**
  - Emerging HC Intensive Services for Individuals @ Risk of 730 Placement:
  - Enhanced Service Coordination between EC Forensic & ECMC 9-2 Beds
    - ✓ Expedited Referrals
    - ✓ Case Conferencing
    - ✓ Discharge & Maintenance Planning
    - ✓ Utilization Management

Control Phase
Current Focus continued

- Establish Access Data Base to Monitor Critical Process Metrics

- In Collaboration with UPP, Establish Training/ Mentoring Program to Ensure Forensic Staff & Consultants' Fidelity with Emerging Practice Standards

- Monthly/ Quarterly Updates of Control Charts Monitoring 730 Bed Day Utilization

<Project Title >

Six Sigma Tools Used

Define	Measure	Analyze	Improve	Control
✓Problem Statement	❑ SIPOC Diagram	✓ Potential X's	✓ Regression Analysis	✓ Control Methods
✓ Macro Map	✓ Process Flow Diagram	✓ Graphical Analysis	❑ DOE Planning	❑ Control Plans
✓ Identify Customers	❑ Value Analysis/ Muda	✓ Hypothesis Testing	❑ Screening DOEs	❑ Poka-Yoke
✓ Project Scope	❑ Detailed Flow (I/O)	✓ Means	❑ Quantifying DOEs	❑ SPM – Monitor Y
✓ Primary Metric	✓ Measurement System Analysis	❑ Variance	❑ Optimizing DOEs	❑ SPC – Control X's
✓ Secondary Metric		❑ Proportions	✓ Verify Critical X's	❑ OCAP
❑ Consequential Metric	❑ Capability Analysis	✓ANOVA	❑ Y = F(x)	❑ Update FMEA
✓ Baseline Data	❑ Short Term Capability	❑ Regression Analysis	❑ Optimization	✓ Project Transition Action Plans
✓ Entitlement	❑ Long Term Capability	❑ FMEA	❑ Generate Solutions	
✓ Objective Statement	✓ Data Collection	✓ ID Critical X's	❑ Select Solutions	✓ Update Financial Benefits
✓ Financial Estimates	✓ Process Monitoring	✓ Quick Improvements	✓ Pilot Trials	❑ Final report
✓ Non-financial Benefits	❑ Lean Opportunities	❑ Lean Improvements	❑ Capability Analysis	❑ Close Project
✓ Team Members	❑ C & E Fishbone	❑ Process Tracking		
	❑ C & E Matrix			
❑ **Define Review**	❑ **Measure Review**	❑ **Analyze Review**	❑ **Improve Review**	❑ **Control Review**